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ABSTRACT

This publication is designed to help local administrators and teachers achieve the fundamental goal of the No Child Left Behind Act, that is, improved learning for all students. For administrators, it furnishes information useful for understanding the key issues that must be dealt with at the district, school, and classroom levels; provides a view of what students are to learn; presents ways to ensure that curriculum, instruction, and assessment are aligned with standards; and offers guidance on how to support teachers' efforts. For teachers, the guide provides information on how to create standards-based learning experiences. The guide is divided into four chapters, including an introduction. Chapter 2 highlights the importance of defining the knowledge and skills students will be expected to acquire and provides guidance for districts and teachers by specifying what students will be learning. Chapters 3 and 4 provide specific guidelines for teachers in designing standards-based units, choosing the best instructional approaches, creating learning experiences, and selecting assessments while considering the diverse needs of students. Each of the three main chapters contains helpful resources, key ideas, and paradigms presented as sidebar material; various figures and exhibits; a conclusion; and references. (Contains 59 references.) (WFA)

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Keeping the Focus on Learning

NOTEWORTHY PERSPECTIVES

by Barbara B. Gaddy, M.A. Ceri B. Dean, Ph.D. John S. Kendall, M.A.

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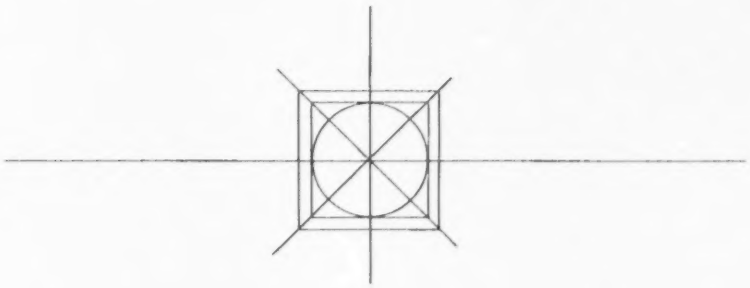

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John S. Kendall, M.A.

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Mid-continent Research for Education and Learning
2550 S. Parker Road, Suite 500
Aurora, CO 80014-1678
Phone: 303.337.0990
Fax: 303.337.3005
E-mail: info@mcrel.org
Web site: www.mcrel.org

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Preface

Mid-continent Research for Education and Learning (McREL), located in Aurora, Colorado, is a private, nonprofit organization founded in 1966. McREL's mission is to make a difference in the quality of education through applied research, product development, and service.

This publication was created through McREL's contract with the U.S. Department of Education's Institute of Education Sciences to serve as the regional educational laboratory for the states of Colorado, Kansas, Missouri, Nebraska, North Dakota, South Dakota, and Wyoming. As the recipient of this contract, McREL provides field-based research, technical assistance, professional development, evaluation and policy studies, and information services to state and local education agencies in these states.

For more than a decade, McREL has been at the forefront of research, practice, and evaluation related to standards-based education. McREL's national leadership area under the regional laboratory contract is standards-based classroom instruction. This issue of *Noteworthy* represents part of McREL's continuing efforts to build on its prior experience and current expertise, collaborate with key organizations, and work with schools, districts, and states to improve their practices and capitalize on the great potential that standards-based education holds for students.

The authors wish to acknowledge the contributions of several individuals in the preparation of this publication. In particular, thanks go to Kirsten Miller for her considerable assistance in drafting preliminary sections and locating supporting materials. We also are grateful for the helpful feedback provided by external reviewers Marcia Haskin, Irene Harwarth, Lin Kuzmich, and Ivor Pritchard and by McREL staff members, in particular Zoe Barley, Brian McNulty, Diane Paynter, Nilda Simms, and Tim Waters. Credit also is extended to Ron Lambert for his design of the cover and page layout and to Dawn McGill for her desktop publishing assistance. Special recognition goes to Lou Cicchinelli, deputy director of McREL, for his valuable guidance and insights throughout the development of this publication. We hope readers, particularly superintendents and principals, find this issue of *Noteworthy* to be a useful tool as they guide changes in schools and classrooms needed to improve the learning of all students.

Chapter 1

Introduction

Creating standards-based education systems is a challenging, though potentially productive, process guided by a commitment that every student gain the knowledge and skills needed to succeed in life and participate effectively in society. Across the country, the efforts of policymakers and educators at every level of the education system are focused on realizing these goals.

In January 2002, President George W. Bush signed into law the No Child Left Behind Act, perhaps the most influential federal education legislation in history. At its core, the Act, which reauthorized the Elementary and Secondary Education Act, is about learning in a system guided by standards and by assessment of students' progress in meeting standards. Among other provisions, the Act mandates yearly testing in grades 3–8, expands the options available to parents, requires schools to make "adequate yearly progress" toward ensuring that all students meet the academic standards in each state, and levies sanctions on schools that fail to meet expectations. Many educators, policymakers, and members of the general public are concentrating on the technical issues of how to meet the requirements of the law. But ensuring that the law accomplishes its goal of improved learning for all students falls ultimately to teachers and local administrators.

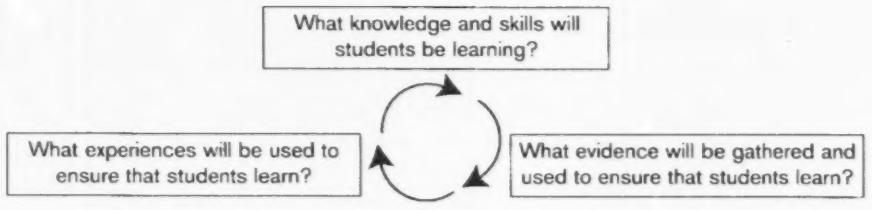
This issue of *Noteworthy* offers guidance to help local educators — teachers and administrators — achieve the fundamental goal of the No Child Left Behind Act: improved learning for all students. For superintendents and principals, this document offers information that is useful for understanding some of the key issues that must be dealt with at the district, school, and classroom levels — developing a clear, specific, and complete view of what students are to learn and ensuring that curricula, instruction, and assessments are aligned with standards and focused on learning. It also offers guidance on how administrators can support teachers' efforts to improve students' performance. For teachers, there is information on how to create standards-based learning experiences. Specifically, this document helps teachers get to the heart of focusing on learning by providing guidance about unit planning and the use of standards-based classroom assessments.

This issue of *Noteworthy* offers guidance to help local educators — teachers and administrators — achieve the fundamental goal of the No Child Left Behind Act: improved learning for all students.

The body of this publication is divided into three chapters, each of which addresses one of three overarching questions, shown in Exhibit 1.1. These questions capture the key characteristics of standards-based classrooms and the essential issues that should be kept in mind if standards are to fulfill their role in guiding teaching and learning.

Chapter 2, Setting Expectations for Learning, highlights the importance of explicitly defining the knowledge and skills students will be expected to learn. The chapter provides guidance for districts and teachers in specifying what students will be learning. This process begins with understanding state and district standards, but it encompasses much more. District

Exhibit 1.1. Three Guiding Questions in a Standards-Based System


What knowledge and skills will students be learning?
What evidence will be gathered and used to ensure that students learn?
What experiences will be used to ensure that students learn?

leaders must make decisions about the scope and depth of content that will be taught and the specific knowledge and skills to be taught at each grade level. In addition, teachers must closely examine benchmarks to more clearly identify the vocabulary terms, concepts, skills, and other content that will be taught.

Chapters 3 and 4 address the interrelated processes of teaching and assessing important content-area knowledge and skills. Chapter 3, Creating Standards-Based Learning Experiences, provides guidelines for teachers in designing standards-based units and choosing the best instructional approaches to use. Chapter 4, Gathering Evidence of Learning, targets the importance of ongoing classroom assessment not only to assess the progress of individual students, but also to guide instruction. These chapters offer guidance on creating learning experiences and selecting assessments while considering the diverse needs of learners. It is important to emphasize that although assessment issues are discussed after curriculum and instruction issues, when teachers plan units of instruction, they should think upfront about what evidence of learning students will be required to provide. Teachers can then design instruction that aligns with both the knowledge to be learned and the expected levels of performance.

There is little doubt that the No Child Left Behind Act presents challenges to educators. Educators need not shy away from these challenges, however. As this *Noteworthy* makes clear, there are actions educators can take that help them get to the heart of the matter — learning. If educators face the complexities of the task by keeping the focus on learning, the rewards and promises of the No Child Left Behind Act are more likely to become a reality.

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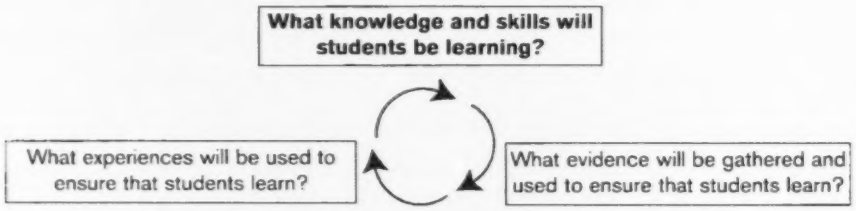
Chapter 2

Setting Expectations for Learning


What knowledge and skills will students be learning?
What experiences will be used to ensure that students learn?
What evidence will be gathered and used to ensure that students learn?

One of the first steps in creating a standards-based learning environment is to develop a clear and comprehensive set of expectations about what students are to learn. At the practical level, this process often begins with an identification of the statements of knowledge and skills that students will be expected to learn at specific points in their K–12 education. In nearly every state, these statements are captured in state standards and benchmarks. In addition, many communities now have district standards in place. But the process of determining what students will be expected to learn does not end with simply pulling together state and district standards. As described in this chapter, administrators and teachers also must attend to three broad tasks:

1. Ensure that there is a shared understanding of state and district standards.
2. Determine the scope and depth of content to be taught.
3. Clarify what content will be taught at each grade level.

The first two of these tasks are primarily district responsibilities. The last task requires effort on the part of district staff as well as classroom teachers. These three broad areas of responsibility are discussed in the sections that follow.

UNDERSTANDING STATE AND DISTRICT STANDARDS

Given the central and increasingly important role of standards in U.S. schools, it is critical that local educators have a shared understanding of state and district standards. Without such an understanding, it is unlikely that there will be a coherent approach to curriculum, instruction, and assessment within and across grade levels.

There are many technical issues related to standards that determine whether districts can effectively use them. Among the key questions are whether the standards are clear, measurable, developmentally appropriate and rigorous, represent a balance of the topics in a content area, and the extent to which they are conceptually well structured. Foremost among these issues is whether it is clear what content is being conveyed in the standards.

Unfortunately, in spite of revisions over the years, many state standards still lack clarity. The 2001 edition of the American Federation of Teachers' annual report, *Making Standards Matter*, reports that 29 states and the District of Columbia have clear standards in the core subject areas of English, mathematics, social studies, and science at the elementary, middle, and high school levels.[1] Yet the standards of 20 states still lack clarity,

[1] Iowa requires districts to set their own standards.

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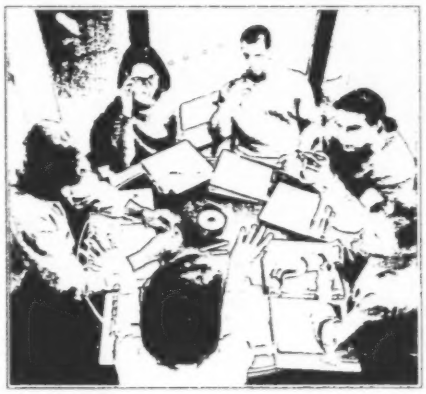
which makes it more difficult for teachers, curriculum developers, and others in those states to develop a shared understanding of what should be taught and assessed.



There are several actions districts might take to address this problem. For example, if districts have not developed local standards, they can use the resources listed in the "Helpful Resources" sidebar to review their state standards for clarity and make note of standards that are unclear. Once these areas have been identified, district staff might examine state assessments — if they are closely aligned with standards — to determine the intent of the standard under question. Another action might be to talk to someone from the state department of education who was involved in writing the standards document for guidance about the content that was intended to be conveyed in a particular standard.

Helpful Resources: Criteria for Good Standards

A Compendium of Standards and Benchmarks for K–12 Education (3rd ed.) (Kendall & Marzano, 2000) www.mcrel.org/standards-benchmarks/index.asp

Great Expectations? Defining and Assessing Rigor in State Standards for Mathematics and English Language Arts (Joftus & Berman, 1998)

Making Standards Matter 2001 (American Federation of Teachers, 2001) www.aft.org/edissues/standards/ Also see the AFT's Standards-Based Systems website: www.aft.org/edissues/standards/SBS/Index.htm

The State of State Standards: 2000 (Finn & Petrilli, 2000) www.edexcellence.net

Tool Kit: Evaluating the Development and Implementation of Standards (Council of Chief State School Officers, 1998) www.ccsso.org

If districts have local standards, they might consider forming a committee of teachers and other stakeholders to review and revise their standards if necessary. The revised documents should be made readily available to all, on the district website, for example.

One important way to ensure shared understanding of standards is to give all stakeholders opportunities to talk about what the standards mean and about implications for curricula, instruction, and assessment. This might mean scheduling presentations and other forums about standards and expectations for learning at different grade levels. It also might mean forming curriculum committees that develop or select standards-based instructional materials.

Involving teachers in activities to align curricula and standards is one way to foster conversations that build understanding of standards. Other successful strategies include providing professional development on different ways of assessing student knowledge or supporting study groups on issues of standards implementation. The approach is not as important as is the opportunity for conversations that lead to greater understanding.

DETERMINING THE SCOPE AND DEPTH OF CONTENT TO BE TAUGHT

The No Child Left Behind Act requires states to identify challenging academic standards in reading or language arts, mathematics, and, by the 2005–2006 school year, science. But most communities consider it important to teach concepts, facts, and skills in other areas as well so that students are well rounded and prepared to succeed in life and work. In addition to content in subject areas such as history, geography, physical education, foreign languages, and the arts, most districts value the development of reasoning skills, work habits, and interpersonal skills such as thinking critically and

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working cooperatively with others. This group of more general standards, sometimes called *lifelong learning standards* or *life skills*, encompasses skills that are useful across the content areas and important for the world of work.

A problem that immediately arises when schools and districts consider all of the content they consider important for students to learn is the time available for instruction. It has long been recognized that given the amount of time available during the school day, it simply is not possible to appropriately teach all of the important knowledge and skills in every subject area.

District and school leaders must make thoughtful decisions about the knowledge and skills that are essential for students to learn. The decision-making process should take into consideration not only *what* students will learn, but the *depth* to which they will be expected to learn it.

There are a number of solutions to the problem of too little time given what must be taught. Among them is to increase the amount of instructional time. Attention has been focused on this issue since the beginning of the standards movement. For example, in 1994 the National Education Commission on Time and Learning released *Prisoners of Time*, which reported findings and recommendations based on the Commission's study of the relationship between time and learning. In short, the Commission reported, much more time is needed for teaching and learning. Among the recommendations made for remedying the problem was to lengthen the school day or school year — an option that a number of districts and schools are exploring.

Another solution to the problem of time is to decrease the number of standards students should learn in depth. It is beyond the purview of this publication to thoroughly discuss this option; briefly, however, this process involves identifying content that is essential for students to learn in depth and content that is not essential, but could enrich the curriculum.

There are a number of strategies for determining what content is essential for students to learn. For example, districts might ask subject-area experts and teachers to rank-order the standards by considering their relative importance and the amount of time needed to appropriately teach and assess them. Another approach is to poll teachers, parents, board members, community members, and other stakeholders about the relative importance of different standards.

Regardless of the particular approach used, district and school leaders must make thoughtful decisions about the knowledge and skills that are essential for students to learn. The decision-making process should take into consideration not only *what* students will learn, but the *depth* to which they will be expected to learn it. There are a number of resources districts might consult (see sidebar) as they engage in this process — either alone or in collaboration with other districts.

Helpful Resources:
Determining the Scope and Depth of Content to Be Taught

Nationally recognized documents in each subject area

State standards documents

Available information about state assessments

A Comprehensive Guide to Designing Standards Based Districts, Schools, and Classrooms (Marzano & Kendall, 1996)

A Distillation of Subject-Matter Content for the Subject Areas of Language Arts, Mathematics, and Science (Kendall, Snyder, Schintgen, Wahlquist, & Marzano, 2000) www.mcrel.org/products/standards/

The National Assessment of Educational Progress, commonly known as "The Nation's Report Card." Also see www.nagb.org for assessment frameworks that provide a national perspective on content that is valued in various subject areas.

CLARIFYING GRADE-LEVEL CONTENT

Though states are moving toward defining grade-level benchmarks, most state standards currently are described in grade-range bands, for example K–2, 3–5, 6–8, and 9–12. Given the No Child Left Behind Act's requirement that states test students in grades 3–8 in reading and mathematics by 2005–2006, and by 2007–2008, science, states are in the process of crafting grade-level benchmarks and tests in these content areas. But this process will take time. In the meantime, the content to be covered at each grade level still needs to be clearly and specifically defined.

States vary in the type and specificity of grade-level guidance they offer. For example, Colorado offers "Suggested Grade Level Expectations" (see Exhibit 2.1). Missouri provides a "Framework for Curriculum Development" in six areas. Each framework, intended to "provide assistance to districts in aligning local curriculum with the Show-Me Standards," includes statements of what students should know and be able to do at the end of particular grade levels, along with sample learning activities. Details on the guidance available from each of the seven states in the Central Region are provided in Exhibit 2.2.

Exhibit 2.1. Colorado Guidance – Reading & Writing

Standards:
Six content standards for the K–4, 5–8, and 9–12 grade ranges

Suggested Grade-Level Expectations:
Grades K, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

Assessment Framework:
Grades 3, 4, 5, 6, 7, 8, 9, 10
(grades assessed by the state test)

Source: Colorado Department of Education website www.cde.state.co.us

In addition, some states offer guidelines relative to content covered by the state assessment. In some states, assessments are aligned with state standards; in others, they are not. Over time, as states engage more fully in meeting the requirements of the No Child Left Behind Act, however, assessments and standards will likely become better aligned. Until then, educators might contact the assessment offices of their state departments of education to develop a better understanding of what content is assessed at each grade. The Colorado Department of Education, for example, provides "assessment frameworks" for reading, writing, and mathematics at each grade level assessed by the state.

Even when grade-level guidance is not available, districts can review grade-range benchmarks to determine what content should be addressed at each grade. Consider, for example, the following K–4 benchmark:

> Uses the relationships of the arithmetic operations addition, subtraction, multiplication, and division to solve problems

This benchmark is sweeping in the content it covers, and clearly addresses some content that could be addressed in an earlier grade, some in a later. Certainly, the benchmark would be too great a burden to be introduced for the first time and mastered entirely in the fourth grade. Districts might break down this benchmark by grade as follows:

> *Kindergarten:* Understands the concepts of addition and subtraction
>
> *First grade:* Understands that subtraction is the opposite of addition
>
> *Second grade:* Uses the inverse relationship of addition and subtraction to solve whole number problems
>
> *Third grade:* Uses the concept of multiplication as repeated addition to solve whole number problems
>
> *Fourth grade:* Uses the inverse relationship of multiplication and division to solve whole number problems

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Exhibit 2.2. The Central Region States: Benchmark Levels

State / Area	Language Arts	Mathematics	Science	Social Studies
Colorado	Every grade, K–12 (reading & writing)†	Every grade, K–12†	Every grade, K–8†	Every grade, K–8†
Kansas	End of 2nd grade End of 3rd grade* End of 5th grade End of 8th grade End of 11th grade (reading & writing, listening, viewing, speaking)	End of every grade, K–12**	End of 4th grade End of 8th grade End of 12th grade (K–4, 5–8, 9–12)	End of 2nd grade‡ End of 4th grade‡ End of 6th grade‡ End of 8th grade‡ End of 11th grade‡ End of 12th grade‡
Missouri	End of 2nd grade End of 4th grade End of 8th grade End of 12th grade (communication arts)	End of 4th grade End of 8th grade End of 12th grade	End of 2nd grade End of 4th grade End of 8th grade End of 12th grade	End of 4th grade End of 8th grade End of 12th grade
Nebraska	End of 1st grade End of 4th grade End of 8th grade End of 12th grade (reading/writing)	End of 1st grade End of 4th grade End of 8th grade End of 12th grade	End of 1st grade End of 4th grade End of 8th grade End of 12th grade	End of 1st grade End of 4th grade End of 8th grade End of 12th grade
North Dakota	End of 4th grade End of 8th grade End of 12th grade (language arts)	End of 4th grade End of 8th grade End of 12th grade	End of 4th grade End of 8th grade End of 12th grade	End of 4th grade End of 8th grade End of 12th grade
South Dakota	Every grade, K–8; then grade range 9–12Δ (communication/ language arts)	Every grade, K–8; then grade range 9–12Δ	Every grade, K–8; then grade range 9–12Δ	Every grade, K–8; then grade range 9–12Δ
Wyoming	End of 4th grade End of 8th grade End of 11th grade (language arts)	End of 4th grade End of 8th grade End of 11th grade	End of 4th grade End of 8th grade End of 12th grade	End of 4th grade End of 8th grade End of 12th grade

† Colorado provides "Model Content Standards" for grade ranges K–4, 5–8, and 9–12. In addition, the Department of Education's website provides "Suggested Grade Level Expectations" in 12 content areas.

‡ Kansas identifies benchmarks for civics-government and for economics at the end of grades 2, 4, 6, 8, and 12; for geography and for U.S. history, end of grades 2, 4, 6, 8, and 11; for Kansas history, end of grades 2, 4, 8, and 11; and for world history, end of grades 2, 4, 6, and 11.

* Kansas third-grade benchmarks are identified only for reading & writing.

** Draft Kansas mathematics standards as of August 2002

Δ Each South Dakota school district is responsible for organizing the 9–12 grade-level standards into courses offered at the 9–12 level.

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These grade-by-grade descriptions make expectations more explicit and clarify how the summary benchmark can be met at the end of fourth grade by carefully and thoughtfully distributing content at the appropriate grades.

Analyzing grade-range benchmarks to arrive at grade-by-grade descriptions is an essential step in preparing to teach in a standards-based setting. Because the work has such significant implications, and the task itself can be difficult, districts usually take on the effort, rather than leaving it to individual schools. To aid in the process, there are a number of resources districts might consult, including those listed in the Helpful Resources sidebar. However, districts also should engage teachers and outside agencies in the process. Teachers who are involved in some aspect of the analysis of benchmarks accelerate their understanding of the standards and the rationale for developing clear expectations. Teachers also can illuminate the process of grade placement through their understanding of the curriculum that is currently available to support the content described in the benchmarks. Outside agencies can help by lessening the burden represented by the analytical effort and by fulfilling a third-party or "critical-friend" role during the benchmark development, thus helping to ensure a quality product.

Of course, once benchmarks are developed for each grade, the work is not yet done. It still is necessary to be clear about what specific benchmarks mean for curriculum planning and for day-to-day instruction. To illustrate, consider the following benchmark, from the example above, for grade 4:

> Uses the inverse relationship of multiplication and division to solve whole number problems

Before a teacher can design a lesson or unit related to this benchmark, he or she must closely examine it to determine more specifically what content should form the basis of instruction. For example, this benchmark might encompass the following knowledge and skill statements:

- Understands the concept of a factor
- Understands the concept of a multiple
- Understands the concept of number decomposition
- Understands the relation of multiplication and division in composition and decomposition of numbers
- Understands that division is a form of repeated subtraction
- Decomposes numbers
- Solves problems using factors

As this example illustrates, even a benchmark that is clear and specific may have a range of additional content embedded in it. In effect, teachers need to extract the content, or "unpack" the benchmark, to understand exactly what knowledge and/or skills the benchmark encompasses.

Helpful Resources:
Articulating Grade-Level Content

A Technical Guide for Revising or Developing Standards and Benchmarks (Kendall, 2001)
www.mcrel.org/products/standards/

Sequenced Benchmarks for K–8 Science
(Kendall, DeFrees, & Richardson, 2002)
www.mcrel.org/products/standards/

Local curriculum frameworks and guides

State standards, assessment frameworks, and curriculum guidelines — frequently available on the websites of individual state departments of education

Identifying key vocabulary terms and phrases is an important part of this process. In addition to making clear the constituent pieces of a benchmark, it serves the purpose of heightening an emphasis on vocabulary. A number of researchers have linked vocabulary levels with intelligence, the ability to comprehend new information, and future income levels. Because words are used as indicators for objects and concepts, increased vocabulary levels help students make new connections, perceive things in different ways, and enhance overall learning.

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In fact, Stahl and Fairbanks (1986), in their review of research on vocabulary, found that teaching general vocabulary led to an increase of 12 percentile points in student comprehension of new material. And when vocabulary instruction is linked to the content that students are learning, research shows that student achievement can increase by as much as 33 percentile points (Stahl & Fairbanks, 1986). Systematically instructing students in vocabulary, particularly in terms and phrases that are linked to standards-based units and lessons, is an important part of creating effective learning experiences. In this way, teaching vocabulary can help keep the focus on learning.

CONCLUSION

The path to high student achievement begins with a simple question, What knowledge and skills will students be learning? Standards are the starting point for answering this question, but not the ending point. To develop a complete picture of what students will learn, educators also need to determine the scope and depth of content that will be addressed, a problem compounded by the finite amount of time available during the typical school day. In addition, there must be clarity about what will be taught at each grade level.

Both administrators and teachers are responsible for creating a set of expectations for student learning. Local education leaders should lead the process of ensuring that stakeholders understand state and district standards and guide them in determining what content is essential for students to learn. District and school leaders also play a key role in determining what will be taught at specific grade levels, though teachers should be integrally involved in this process. Finally, even well-written benchmarks typically encompass a fair amount of knowledge and skills which teachers need to specify in order to understand the scope of content that should be taught.

All of these steps take time, but they are critical. A detailed picture of the knowledge and skills teachers will be accountable for ensuring that students learn gives educators the solid foundation they need to develop standards-based lessons and units, select appropriate instructional strategies, design classroom assessments, and prepare students for success on high-stakes assessments.

Key Ideas: Keeping the Focus on Learning Through Standards & Benchmarks

Educators must attend to three broad tasks in order to identify the specific knowledge and skills students will be learning:

- Ensure that there is shared understanding of state and district standards.
- Determine the scope and depth of content to be taught.
- Clarify what content will be taught at each grade level.

Educators should use all available guidance to make these statements of knowledge and skills as specific as possible for each grade level and in each content area that will be taught.

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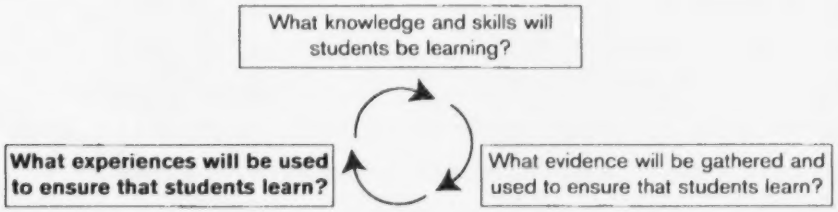
Chapter 3

Creating Standards-Based Learning Experiences


What knowledge and skills will students be learning?
What evidence will be gathered and used to ensure that students learn?
What experiences will be used to ensure that students learn?

Once the specific knowledge and skills that students should learn have been identified, the next steps are to ensure that students learn this content and to gather evidence that they have. The challenge in this ongoing, iterative process is to keep the focus on learning for all students.

This chapter addresses the question, What experiences will be used to ensure that students learn? Specifically, this chapter includes guidance for planning standards-based lessons and units, a process for efficiently teaching content beyond the essential curriculum, an overview of research-based instructional strategies for enhancing learning, and suggestions for differentiating instruction given students' diverse learning styles and characteristics. The next chapter, Gathering Evidence of Learning, discusses the central role of assessment in a standards-based system.

PLANNING STANDARDS-BASED LESSONS AND UNITS

As educators design lessons and units, they often are tempted to identify a theme and then to immediately create activities that students might engage in. Frequently, teachers have students participate in activities because teachers have used them for years or because students enjoy them. Exhibit 3.1 shows how lesson or unit planning traditionally is approached — a general theme is identified and then activities are created that seem related to the theme. This approach may result in interesting or fun activities, but not necessarily activities that ensure that students learn key knowledge and skills. In the case of "European Day," for instance, teachers should consider the purpose of having students dress up. What, specifically, will students learn by dressing up as someone from a different country?

Exhibit 3.2 shows how the theme was first linked to standards and benchmarks and then to activities designed to teach this content. Certainly activities should be fun and engaging, but activities should be chosen because they will help students learn the specific knowledge or skills identified for the unit.

Designing standards-based lessons requires teachers to keep track of the standards, benchmarks, and other specific knowledge and skills that are the focus of each unit — and to map out the activities and strategies that will help ensure that students learn this content. Graphically laying out a unit as shown in Exhibit 3.2 can be useful. To help facilitate students' understanding, teachers also might share age-appropriate visual unit maps such as these with their students. Graphic representations, such as pictures and diagrams showing related concepts and ideas, also might be added.

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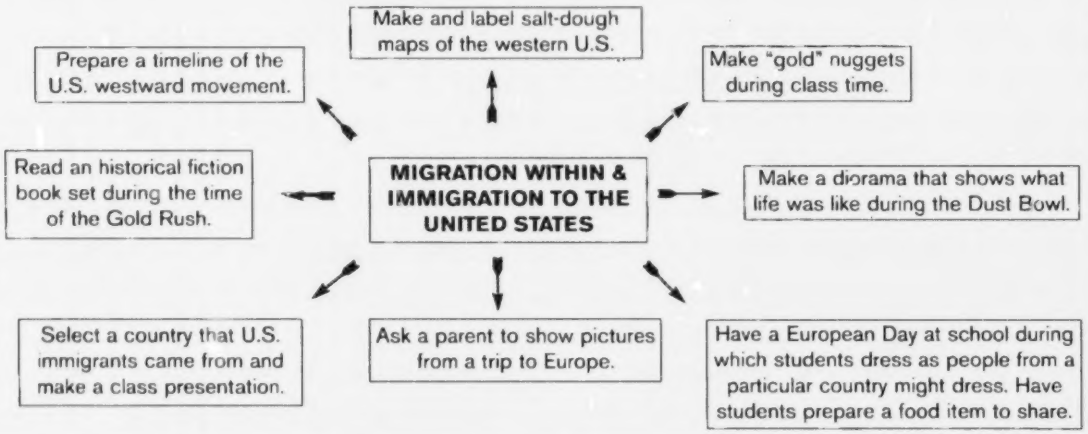
Exhibit 3.1. Traditional Approach to Planning


Make and label salt-dough maps of the western U.S.
Prepare a timeline of the U.S. westward movement.
Make "gold" nuggets during class time.
Read an historical fiction book set during the time of the Gold Rush.
MIGRATION WITHIN & IMMIGRATION TO THE UNITED STATES
Make a diorama that shows what life was like during the Dust Bowl.
Select a country that U.S. immigrants came from and make a class presentation.
Ask a parent to show pictures from a trip to Europe.
Have a European Day at school during which students dress as people from a particular country might dress. Have students prepare a food item to share.

Linking activities to academic content is key, but it is only one step in planning an effective standards-based unit. For a unit to be truly effective, it should reflect a number of characteristics, including the following:

- Alignment among instruction, assessment, and the curriculum
- An appropriate number of standards and benchmarks given the scope (i.e., duration, time allocated) of the unit
- A logical progression for developing understanding of concepts (i.e., takes students from where they are to the desired learning; the activities make sense as a whole and help students acquire the targeted knowledge and skills)
- Activities embedded in meaningful contexts
- Opportunities for students to use higher order thinking skills to clarify, refine, and apply their learning
- Opportunities for students to self-assess and reflect on their learning
- Appropriate accommodations or modifications so that students with a range of abilities, backgrounds, and needs will benefit (e.g., accommodations or modifications for special populations)
- Multiple opportunities and methods for formal and informal assessment and feedback

Ensuring that a unit embodies all of these elements is a deliberative process that takes time, thoughtful planning, coordination, and consideration of students' aptitudes, interests, and other unique characteristics. "What knowledge and skills will students be learning?" is a question that should be asked at the beginning of the planning process, but also throughout the process as a way of ensuring that the activities and other learning experiences used are based on knowledge and skills that students should learn. Developing activities and other learning experiences that are tied to specific concepts, details, or skills helps keep the focus on learning.

Enriching the Curriculum

As discussed in Chapter 2, given the large body of essential knowledge and skills schools and districts may identify due to federal, state, and local requirements, teachers frequently find themselves with too much to teach and too little time in which to teach it. One option that districts have explored is reducing the number of standards that *must* be taught.

A promising approach for districts opting to reduce the number of standards that must be taught lies in the idea of the intensive and extensive curricula, proposed by

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Exhibit 3.2. Standards-Based Approach to Planning

Science Standard: Understands relationships among organisms and their physical environment

History Standard: Understands the causes and nature of movements of large groups of people into and within the United States, now and long ago

Geography Standard: Understands the nature, distribution, and migration of human populations on Earth's surface

MIGRATION WITHIN & IMMIGRATION TO THE UNITED STATES

History benchmark: Knows the various movements of large groups of people in the history of the U.S.

Activities that will help students learn this content:

- Draw a pictograph that represents key details about the movement of freed African Americans from 1860 to 1920.

History benchmark: Knows the reasons various groups (e.g., freed African Americans, Mexican and Puerto Rican migrant workers, Dust Bowl farm families) migrated to different parts of the U.S.

Activities that will help students learn this content:

- Imagine that you are a member of a Dust Bowl farm family. Write a story about how you decided where to migrate to escape the Dust Bowl. Be sure to include facts about the Dust Bowl and where most people migrated when they left the region.

Science benchmark: Knows that an organism's patterns of behavior are related to the nature of that organism's environment (e.g., kinds and numbers of other organisms present, availability of food and resources, physical characteristics of the environment)

Activities that will help students learn this content:

- Select an organism that migrates due to physical characteristics of its environment. Select a human group that migrated to or within the United States due to physical characteristics of the environment.

  Use a graphic organizer to show how the migration of the organism and the human group are similar and different. Be sure to include a conclusion statement with the comparison. Some categories you might want to consider for comparison include access to food, availability of water, temperature extremes, and competition for resources.

History benchmark: Understands the experiences of immigrant groups (e.g., where they came from, why they left, travel experiences, ports of entry and immigration screening, the opportunities and obstacles they encountered when they arrived; changes that occurred when they moved to the United States)

This benchmark encompasses the following knowledge: *

- Understands where immigrant groups came from
- Understands why immigrant groups left their countries
- Knows the ports of entry
- Understands the screening process immigrants encountered

Activities that will help students learn this content:

- Chart the number of immigrants that came from different countries between 1820 and 1920.
- Role-play the experience of an immigrant going through the screening process at two different ports of entry.
- Select one of your ancestors, or a specific individual who immigrated to the U.S. Learn about the reasons the person immigrated to the U.S. Also find out how this person's life was different in the U.S. compared to the person's life in his or her native country. Write a story or a short report, or prepare a presentation of your findings.

Geography benchmark: Knows the causes and effects of human migration, especially the effects of physical geography on national and international migration

Activities that will help students learn this content:

- Make an exhibit that shows how rivers, mountains, and other features of physical geography affected migration within the United States.
- Create a presentation that explains the role of rivers and mountains in the migration of farmers from the East coast to the Midwest from 1800–1850.

* As explained in Chapter 2, a key step in specifying the content to be taught is examining benchmarks and identifying, or "unpacking," embedded knowledge and skills. This step should be completed for *all* of the benchmarks that are the focus of a unit.

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E.D. Hirsch in *Cultural Literacy: What Every American Needs to Know* (1987). As defined by Hirsch, the *intensive curriculum* comprises what students should know in depth; the *extensive curriculum* comprises knowledge about which all students should have some understanding. The content individual students will study in depth may vary, but through the addition of the extensive curriculum, all students should have at least a passing familiarity with all content identified in the complete curriculum. Hirsch described the difference between the intensive and extensive curriculum in the following way:

> The conception of a two-part curriculum avoids the idea that all children should study identical materials. It also resists the lure of a core curriculum, if that proposal is taken to mean that all high school graduates should study, say, *Romeo and Juliet*. A common extensive curriculum would ensure that students have some information about Romeo and Juliet, but in their intensive curriculum they might study *The Tempest* or *Twelfth Night* in detail. If a school decided that all its students should read two Shakespeare plays in depth, even the most convinced traditionalists would find it hard to agree on which two plays they should be. Schools can find means of imparting extensive information side by side with an approach that conveys intensive knowledge as well, without imposing an arbitrary core curriculum. (p. 128)

Hirsch proposed vocabulary instruction as an effective means for imparting that portion of the curriculum that would not be taught in depth. Another strategy for extending the curriculum, proposed by Kendall, DeFrees, Pierce, Richardson, and Williams (2002), is to use *connecting ideas* to address academic content that districts, schools, or teachers consider important, but not essential. A connecting idea links content that is part of the intensive curriculum — what might be called the *essential content* — to content identified as part of the extensive curriculum — the *extended content*. Content can be linked within or across subject areas. The connecting idea is a strategy, like vocabulary instruction, for meaningfully enriching the curriculum. Although the connecting idea can be summarized in a short, descriptive phrase, it is important to more fully describe the idea so that the link is firmly established. Consider, for example, Exhibit 3.3. The essential content is a specific benchmark under a general science standard regarding the principles of heredity and related concepts. The essential standard and its benchmark are followed by a suggested connecting idea, a description of the link, then the specific benchmark of extended content that the topic joins.

Given the large body of essential knowledge and skills schools and districts may identify due to federal, state, and local requirements, teachers frequently find themselves with too much to teach and too little time in which to teach it.

In Exhibit 3.3, the idea that hereditary information is contained in genes is the focus of instruction. Specific information about the domestication of plants and animals is not central to understanding this idea, but the connection to history helps make clear for students how knowledge about hereditary information has affected history. More broadly, students could come to understand how the facts of science connect to everyday lives. The connecting idea focuses primarily on science knowledge. The link does not require that the teacher be well versed in the domestication of plants and animals.

A connecting idea should meet certain criteria to ensure that it serves its intended purpose:

1. It should be built on essential content.

   A connecting idea can be constructed for any content — essential or nonessential. However,

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Exhibit 3.3. Using a Connecting Idea with Sample Essential Science Content

ESSENTIAL CONTENT

SCIENCE
Standard: Understands the principles of heredity and related concepts
Benchmark: Knows that hereditary information is contained in genes (located in the chromosomes of each cell), each of which carries a single unit of information; an inherited trait of an individual can be determined by either one or many genes and a single gene can influence more than one trait

CONNECTING IDEA: DOMESTICATION OF PLANTS AND ANIMALS
Although we may think of genetic engineering as a modern-day technique, in actuality, selective breeding has been around for thousands of years. The domestication of dogs is an early example of this. Humans would have selected those dogs that responded positively to human behavior.

EXTENDED CONTENT

SOCIAL STUDIES - WORLD HISTORY
Standard: Understands the processes that contributed to the emergence of agricultural societies around the world
Benchmark: Understands how agricultural communities maintained their produce and livestock (e.g., methods used by scholars to reconstruct the early history of domestication and agricultural settlement, how and why human groups domesticated wild grains and animals after the last Ice Age, the importance of controlling food supplies and storing them in the "Neolithic revolution")

it is of little benefit for introducing extended content if the connecting idea is not linked to content that is essential — that is, content that certainly will be covered.

2. It should connect extended content to essential content.

   The extended content should not be content that is commonly assessed or considered a critical part of the curriculum. If the extended content is explicitly addressed in another course, the linking topic will not serve the goal of familiarizing students with content that they will otherwise not be exposed to.

3. It should be credible and meaningful.

   The idea used to connect essential and extended content should be a central and meaningful element of the essential content, rather than a peripheral or artificial one. For example, if the essential content deals with the fact that hereditary information can be determined by *one or many genes*, the connecting idea that the erosion of the side of a cliff can be affected by *one or more processes*, such as weather, landslides, or earthquakes, would be artificial.

Because the extended content is introduced in context and is meaningful, students' recall of the information is likely to be enhanced. Meaningfulness and context are widely known to enhance one's memory of information (Anderson, 1990). In this respect, connecting ideas share the advantages of other approaches that seek to use topics to broaden and deepen students' connections to new information (Erickson, 1998; Jacobs, 1989). A connecting idea shows how new information can be applied to other subject areas and experiences outside the immediate lesson or unit.

The connecting idea is similar in some respects and different in others to designs that seek to enhance meaning through an interdisciplinary approach. These similarities and differences are discussed more fully in *Connecting Ideas: A Strategy for Extending the Curriculum* (Kendall et al., 2002), along with a set of connecting ideas that link middle school science content to social studies (primarily history) at the middle school level. Briefly, using connecting ideas avoids the difficulties in middle school and beyond of coordinating lesson plans and teaching schedules across subject areas, since expertise in the subject area of the extended content is not necessary. Further, since the extended content will not always be assessed, all students do not need to understand this content at a deep level. In this respect, the connecting idea is similar to designs that include what some call *curriculum enrichment*, or what Wiggins and McTighe (1998) call "knowledge that students should find *worth being familiar with*" (p. 9) (italics, the authors').

Connecting ideas can be a useful means for familiarizing students with concepts that might not otherwise be introduced, given the limited time available for instruction. Given their benefit, groups of teachers within or across disciplines might find it useful to work together to generate a bank of connecting ideas that link specific essential content with extended content.

DESIGNING EFFECTIVE INSTRUCTION

As discussed in Chapter 2, identifying the knowledge and skills students are to learn is a crucial first step toward implementing standards in the classroom. But unless this content is delivered in a way that is meaningful to students and appropriate for the kind of knowledge or skills being taught, student achievement will not be significantly enhanced. How teachers go about helping students learn is important for two primary reasons: different types of content should be taught differently, and students differ in terms of their backgrounds, perspectives, needs, and learning styles. Instruction that reflects an understanding of these key variables is more likely to be meaningful and effective, help teachers keep the focus on learning, and help students make connections among the information, ideas, and skills they are learning. This section offers an overview of research-based instructional strategies for enhancing learning and guidance on differentiating instruction given students' diverse learning styles and characteristics.

Instructional Strategies that Enhance Student Achievement

Given the pressures of standardized testing requirements, the challenges of large classes, and an increasingly diverse student population, teachers may find it difficult to sort out which instructional strategies work best with their students. Although findings from studies of classroom instruction are available, education researchers agree that the research has not always been presented in a way that can be readily used by educators (Robinson, 1998; Kennedy, 1997).

Helpful Resources:
Using Research-Based Instructional Strategies

Classroom Instruction that Works: Research-Based Strategies for Increasing Student Achievement (Marzano, Pickering, & Pollock, 2001)

Research into Practice Series: Effective Instructional Practices (Marzano, Whisler, Dean, & Pollock, 2000)

There are, however, practical research-based resources that point educators to strategies that do enhance student achievement. One resource of note is *Classroom Instruction that Works: Research-Based Strategies for Increasing Student Achievement* (Marzano, Pickering, & Pollock, 2001), which is based on a meta-analysis of research on instruction conducted by education researcher Robert Marzano (1998). *Classroom Instruction that Works* identifies nine categories of instructional strategies that research indicates have a high probability of enhancing student achievement for all students in all subject areas at all grade levels:

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1. *Identifying similarities and differences* — determining how two or more elements are the same and how they are different

2. *Summarizing and note taking* — identifying what is important about information

3. *Reinforcing effort and providing recognition* — strategies that focus on enhancing students' motivation

4. *Homework and practice* — strategies that give students opportunities to deepen their understanding and increase their proficiency

5. *Nonlinguistic representation* — representing knowledge nonlinguistically, for example, in graphic organizers, in mental images, in drawings or pictographs, in models, or through physical movement such as role play

6. *Cooperative learning* — two or more students, who share responsibility for tasks, working together to accomplish goals

7. *Setting goals and providing feedback* — strategies that help students think about and engage in their learning

8. *Generating and testing hypotheses* — strategies that help students apply knowledge

9. *Questions, cues, and advance organizers* — strategies that help students access what they already know about a topic

These strategies can be used to enhance students' learning of knowledge and skills and to improve the learning process. For example, when students engage in a task in which they must determine how two or more things are similar and different, they must analyze the information at a fairly deep level; cues or advance organizers, on the other hand, help activate students' prior knowledge about a topic. These nine strategies also can help teachers circumvent some of the issues that can interfere with keeping a line of sight to student learning. For instance, as teachers consider the factors that interfere with learning, it could become apparent that student motivation is an issue. In this instance, teachers might increase their use of Strategy 3, reinforcing effort and providing recognition. One way to do this is to teach students about the relationship between effort and achievement (Marzano, Pickering, & Pollock, 2001). Teachers also might ask students to assess their level of effort and achievement using rubrics and keep track of that relationship on individual student charts.

The nine instructional strategies are applicable to a broad range of knowledge and skills, which can be loosely organized into five categories (Marzano, Pickering, & Pollock, 2001):

1. *Vocabulary* — Key terms or phrases that capture essential ideas

2. *Details* — Very specific information such as facts, timelines, episodes, and cause/effect relationships

3. *Organizing ideas* — Ideas, such as principles and generalizations (or concepts), that can be applied to different situations

4. *Skills and tactics* — A specific set of steps performed in a fairly strict order

5. *Processes* — A more general set of steps; skills might be embedded in processes

The first three categories include knowledge related to ideas and information important to a particular content area — sometimes referred to as declarative knowledge.

For instance, how the major television networks and other media influence cultural norms and citizens' perceptions of reality is declarative knowledge. To understand this idea, students need opportunities to think and reason about it deeply by comparing and contrasting and by testing hypotheses — Strategies 1 and 8. If students are reading detailed information about this idea, teachers might ask them to summarize it, noting key ideas, or take notes as they read or as they listen to class presentations — Strategy 2. Standards and benchmarks that are declarative in nature typically begin with "understands that" or "knows that" (see Exhibit 3.4).

Exhibit 3.4. Declarative & Procedural Knowledge

Declarative	Procedural
The student knows or understands . . .	*The student is able to . . .*
the meaning of the musical terms *piano*, *forte*, *crescendo*, and *diminuendo*	use standard notation to record musical ideas
the defining characteristics of a fairy tale	write stories or essays that convey an intended purpose
how regions change over time and the consequences of these changes	use map grids (e.g., latitude and longitude or alphanumeric system) to plot absolute location

The last two categories focus on skills and processes important to a content area — sometimes referred to as procedural knowledge — rather than information. Teaching a skill such as keyboarding requires opportunities for students to practice using the skill — Strategy 4. As students are learning the skill, they also need timely, detailed feedback — Strategy 7 — to help reinforce the aspects of the skill that they are performing well and to help correct errors early in their learning. Standards and benchmarks that are procedural in nature typically begin with verbs such as "uses," "reads," "solves," or "predicts" (see Exhibit 3.4).

The nine categories of research-based instructional strategies can be used effectively alone or in combination to teach different types of knowledge or skills. One example of how these strategies can be combined into an integrated instructional approach is vocabulary instruction.

McREL (see Marzano, Mayeski, & Dean, 2000) has developed a five-step process for systematically teaching vocabulary (see Exhibit 3.5) that exposes students to terms multiple times in multiple ways. The steps of the process are closely related to a number of the nine research-based instructional strategies described previously. Steps 1 and 2 involve presenting students with a brief explanation or description of the new term or phrase and then a nonlinguistic representation — in effect, an advance organizer, Strategy 9. After students have an opportunity to generate their own explanation or description, teachers ask them to create their own nonlinguistic representation of the word — Strategy 5. Finally, students periodically engage in self-evaluation, or self-feedback — Strategy 7 — as they review the accuracy of their definitions and representations as the lesson or unit progresses.

Exhibit 3.5. The Vocabulary Learning Process

Step 1. Present students with a brief explanation or description of the new term or phrase.

Step 2. Present students with a nonlinguistic representation of the new term or phrase.

Step 3. Ask students to generate their own explanations or descriptions of the term or phrase.

Step 4. Ask students to create their own nonlinguistic representation of the word or phrase.

Step 5. Periodically have students review the accuracy of their explanations and representations.

Source: Mid-continent Research for Education and Learning (2001). *Research into practice series: Effective instructional practices - Facilitator's guide.* Aurora, CO: Author.

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To keep the focus on learning and ensure that all students meet high standards, teachers should have opportunities to learn about and share ideas for implementing the instructional strategies highlighted in this section, as well as other strategies that research and experience show are effective. A key element of ensuring the success of all students, however, is having the knowledge, skills, and abilities to modify instruction to meet the diverse needs of students.

Differentiating Instruction

Over the years, awareness and understanding have grown about the many ways in which children differ and how their learning experiences also must differ. Children, like all human beings, are not cut from the same piece of cloth. They have different learning styles, natural aptitudes and interests, backgrounds, cultural perspectives, family situations, and intellectual, physical, and emotional abilities. All of these factors, and others, influence the kinds of learning environments, interactions, and experiences that are likely to help different children flourish and learn.

There is a growing body of research and reports of effective practice related to teaching strategies and learning environments that help different groups of students meet high standards. Synthesizing these findings and offering detailed guidance about teaching to meet the needs of the wide diversity of students that teachers may find in their classrooms, however, are tasks beyond the scope of this publication. Nonetheless, the following subsections highlight a number of key resources and organizations that are useful starting points for educators as they seek to learn more about how to help individual students achieve high learning goals. These resources are organized around three broad, interrelated, and overlapping categories of education research and guidance:

- Cultural and linguistic diversity
- Special education
- Gifted and talented education

Cultural and Linguistic Diversity. The cultural and linguistic diversity of the U.S. student population is increasing. In 1995, for example, 2.4 million school-age children in America spoke a language other than English at home, and were limited in their English proficiency — up from 1.25 million in 1979 (Walqui, 1999). The increasing diversity of the student population means that educators have an increased responsibility to understand the unique characteristics of the students in their community, and seek out the guidance and resources needed to ensure that all of these students reach high standards.

One research and development center that conducts ongoing research to help improve the education of at-risk students is the Center for Research on Education, Diversity and Excellence (CREDE), funded by the U.S.

Helpful Resources:
Cultural and Linguistic Diversity

A National Study of School Effectiveness for Language Minority Students' Long-term Academic Achievement (2001), a recently released study from CREDE. The report synthesizes findings from a five-year research study (1996–2001) of U.S. school programs provided for linguistically and culturally diverse students, particularly focusing on English language learners' academic achievement in grades K–12. www.crede.ucsc.edu/research/llaa/1.1_final.html

NCELA, the National Clearinghouse for English Language Acquisition and Language Instruction Educational Programs. NCELA is funded by the U.S. Department of Education's Office of English Language Acquisition, Language Enhancement & Academic Achievement for Limited English Proficient Students. The purpose of NCELA is to collect, analyze, and disseminate information relating to the effective education of linguistically and culturally diverse learners in the U.S. www.ncela.gwu.edu/

Including Culturally and Linguistically Diverse Students in Standards-Based Reform (1998), *Including At-Risk Students in Standards-Based Reform* (2000), and *Including Special Needs Students in Standards-Based Reform* (2000), compilations of research-based papers that served as catalysts for discussions at McREL's series of diversity roundtables. www.mcrel.org/products/diversity/index.asp

Department of Education's Office of Educational Research and Improvement. From 1996–2001, CREDE funded 31 research projects around the country. According to CREDE (2002a), these projects involved gathering data and testing curriculum models "in wide-ranging settings and with diverse student populations — from classrooms with predominantly Zuni-speaking students in New Mexico to inner city schools in Florida to California elementary schools with large populations of native Spanish-speaking students" (para. 2).

In addition to its research projects, CREDE has developed a set of standards for pedagogy, particularly for teaching at-risk students, that reflect the consensus of a range of educators. The Five Standards for Effective Pedagogy (see CREDE, 2002b), designed to articulate what CREDE refers to as "ideals for best teaching practices," were synthesized from findings of education researchers who have worked with students at risk of educational failure due to cultural, language, racial, geographic, or economic factors. Given the wide diversity of students in classrooms across the country, these standards are particularly useful since they capture widely agreed-upon basic principles for working with all students:

1. *Teacher and Students Producing Together* — Facilitate learning through joint productive activity among teacher and students.

   Learning is most productive when it is collaborative — that is, when a teacher and his or her students work together to solve a problem or complete an activity. When teacher and students work together, creating a common context and understanding, learning is maximized.

2. *Developing Language and Literacy across the Curriculum* — Develop competence in the language and literacy of instruction across the curriculum.

   Whether instruction is bilingual or monolingual, student competence in the language of instruction — in academic, social, and subject-matter contexts — is critical to achieving success in school. Competence in language and literacy should be encouraged through purposeful, deliberate conversations, rather than through drills.

3. *Making Meaning* — Contextualize teaching and curriculum in the experiences and skills of students' homes and communities.

   The most meaningful and long-lasting learning occurs when students are able to connect abstract ideas and concepts to their own experiences. By contextualizing instruction, educators can help students connect new concepts to previous knowledge, and understand that abstract ideas are based in everyday realities.

4. *Teaching Complex Thinking* — Challenge students toward cognitive complexity.

   Education researchers agree that students, particularly those at risk of academic failure, benefit from instruction that is cognitively challenging, rather than rote or repetitive. Although some degree of rote learning can be valuable (for instance, memorizing multiplication tables), teachers should provide students with frequent opportunities to achieve a complex understanding of the subject matter taught.

5. *Teaching through Conversation* — Engage students through dialogue, especially instructional conversation.

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To engage students in the learning process, teachers should employ what CREDE calls "instructional conversation." This kind of interaction involves a dialogue between teacher and student that helps the teacher individualize instruction given the student's unique background and experiences.

Special Education. Prior to 1975, access to public education for students with disabilities was extremely limited. Children with severe disabilities were routinely institutionalized; others were simply kept at home, with little or no access to education resources. In 1975, Congress passed the Education for All Handicapped Children Act (Public Law 94-142), now known as the Individuals with Disabilities Education Act (IDEA). This legislation included the following provisions:

- A mandate to provide free, appropriate public education for children with disabilities
- A requirement that an Individualized Education Program (IEP) be developed for each student identified as disabled
- A requirement that schools actively involve parents in planning their child's education
- A requirement that students with disabilities be placed in the least restrictive learning environment

As a result of IDEA, access to the general education classroom and curriculum has improved for children with disabilities, but this access has not been met by the commitment of federal funding and other important supports needed to ensure that students with disabilities have equal opportunities to meet high standards. As part of the reauthorization process for IDEA, in October 2001 President George W. Bush established a Commission on Excellence in Special Education to collect information and study issues related to federal, state, and local special education programs with the goal of recommending policies for improving the education performance of students with disabilities. Findings and recommendations from the Commission's study (2002) are captured in the report *A New Era: Revitalizing Special Education for Children and Their Families*. The dozens of recommendations made by the Commission fall under three major recommendations, which will likely influence the particulars of the reauthorized version of IDEA:

Helpful Resources: Special Education

The National Association of State Directors of Special Education
www.nasdse.org/home.htm

The Council for Exceptional Children
www.cec.sped.org

A New Era: Revitalizing Special Education for Children and Their Families (President's Commission on Excellence in Special Education, 2002)
www.ed.gov/inits/commissionsboards/whspecialeducation/reports/

The Reauthorization of the Individuals with Disabilities Education Act: Moving Toward a More Unified System (Gaddy, McNulty, & Waters, April 2002)
www.mcrel.org/products/policy-briefs/IDEA.asp

1. Focus on results — not on process.
2. Embrace a model of prevention —not a model of failure.
3. Consider children with disabilities as general education children first.

Focus on Results — Not on Process

Although certain legal and procedural safeguards should be in place for children with disabilities, the Commission (2002) notes, IDEA "must return to its educational mission: serving the needs of every child" (p. 8). This mission can only be fulfilled if high expectations for students, rather than process and regulation, drive the education of children with disabilities. As Gaddy, McNulty, and Waters (2002) assert, "Learning should consume the bulk of our time and focus as educators and policymakers, rather than compliance with processes and procedures" (p. 5).

Embrace a Model of Prevention — Not a Model of Failure

Early identification and intervention to prevent failure should be the priority when it comes to assisting students who have disabilities. *A New Era* notes that the Commission was presented with "compelling evidence indicating how early intervention can prevent disabilities in many children and ameliorate their impact in those who develop them" (President's Commission on Excellence in Special Education, p. 22). To support these efforts at the local level, the Commission recommends that states be given the flexibility to use IDEA funds to support early intervention programs and to combine IDEA funds with other sources of federal support for these programs. This recommendation parallels that made by chief state school officers and state directors of special education from Idaho, Kansas, Montana, Nebraska, and North Dakota, which were captured in an April 2002 McREL Policy Brief (see sidebar on previous page).

Consider Children with Disabilities as General Education Children First

Teaching children with disabilities is a shared responsibility among special education and general educators. Yet most general education teachers have had little or no training in how to work with and teach children with disabilities. Ongoing professional development for *all* teachers will help ensure that the needs of students with disabilities are addressed as much as possible in the general education program. In addition, both special education and general education teachers should work together to ensure that students with additional needs benefit from the strong teaching methods offered to children through general education.

Shared responsibility for the education of children with disabilities is reinforced and supported when special education is viewed as an integrated component of school improvement, rather than as a separate program. When students' learning needs are considered as part of an integrated district-level plan to deliver services, experience shows that students are better served, both in the short and long term.

Helpful Resources:
Gifted and Talent Education

Jacob K. Javits Gifted and Talented Students Education Program, reauthorized as Title II, Subpart 6, of the No Child Left Behind Act
www.ed.gov/offices/OESE/Javits/ and
www.ed.gov/legislation/ESEA02/

National Association for Gifted Children www.nagc.org

National Research Center on the Gifted and Talented
www.gifted.uconn.edu/nrcgt.html

The Council for Exceptional Children
www.cec.sped.org

Gifted Education. As the U.S. Department of Education (2002) notes, "Students with talent are found in all cultural groups, across all economic strata, and in all areas of human endeavor" (para. 1). To support the development of gifted and talented students in the United States, the U.S. Congress reauthorized the Jacob K. Javits Gifted and Talented Students Education Program as Title II, Subpart 6, of the No Child Left Behind Act of 2001. This legislation reauthorizes the U.S. Department of Education to fund grants, provide leadership, and sponsor a national research center on the education of gifted and talented students — the National Research Center on Gifted and Talented (NRC/GT).

The NRC/GT, located at the University of Connecticut, is a "nationwide cooperative" of researchers, practitioners, policymakers, and other groups and individuals who are committed to enhancing the performance and potential of young people. Among the organizations that make up the consortium are the University of Connecticut, the University of Virginia, and Yale University. The center's research "emphasizes factors related to identifying, nurturing, and developing a broad range

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of talent potentials in students from diverse ethnic and socioeconomic backgrounds" (NRC/GT, n.d.).

In 1998, the National Association for Gifted Children (NAGC), a nonprofit organization of parents, teachers, educators, community leaders, and other professionals, published *Pre-K–Grade 12 Gifted Program Standards*. This document delineates guiding principles, along with minimum and exemplary standards, for seven gifted education programming criteria. The following description and guiding principles are offered for the curriculum and instruction criterion:

> *Curriculum and instruction* — Gifted education services must include curricular and instructional opportunities directed to the unique needs of the gifted child.
>
> *Guiding principles:*
> - Differentiated curriculum for the gifted learner must span grades pre-K–12.
> - Regular classroom curricula and instruction must be adapted, modified, or replaced to meet the unique needs of gifted learners.
> - Instructional pace must be flexible to allow for the accelerated learning of gifted learners as appropriate.
> - Educational opportunities for subject and grade skipping must be provided to gifted learners.
> - Learning opportunities for gifted learners must consist of a continuum of differentiated curricular options, instructional approaches, and resource materials. (NAGC, 1998, Table 1)

Key Ideas: Keeping the Focus on Learning Through Curricula and Instruction

Lessons and units that keep the focus on learning are those that tie activities and learning experiences to the knowledge and skills identified as important for students to learn.

Educators can extend the essential curriculum and keep the focus on learning by using connecting ideas.

Research indicates that there are a number of instructional strategies that have a high probability of enhancing student achievement.

More and more focus is directed toward research and understanding about strategies that are effective with diverse populations of students. Resources are available that can help educators learn more about how to help diverse groups of students achieve high learning goals.

CONCLUSION

The guidance offered in this chapter centers on two key principles educators should keep in mind as they create standards-based learning environments. First, activities and instructional approaches are most focused on learning when they are tied to the specific knowledge and skills that students should learn. Second, local educators need to understand their students' varied characteristics and seek out guidance and resources about how to differentiate instruction so that all students succeed.

Districts and schools have a responsibility to support teachers in these tasks by providing programs of staff development that are coherent, ongoing, tied to identified learning goals, modified over time in response to changing needs, and integrated with teachers' daily experiences. Local educators need regular opportunities to study, to collaborate and share ideas with their colleagues, to mentor and be mentored, and to learn what they need to know and do to make effective standards-based instruction a reality. As diversity in the classroom has increased and as accountability pressures have grown, so has the need for professional development. A program of professional development tied to K–12 standards for students is critical to ensuring that teachers develop needed understandings and skills and learn how to integrate findings from research and studies of best practice into their classrooms.

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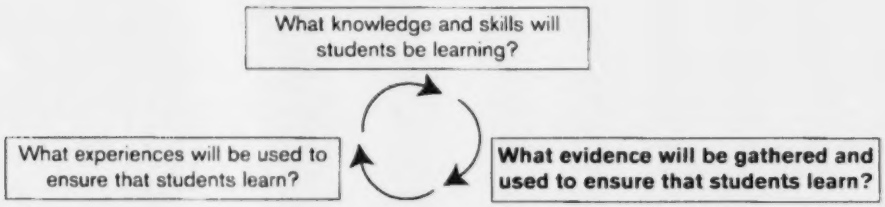
Chapter 4

Gathering Evidence of Learning


What knowledge and skills will students be learning?
What experiences will be used to ensure that students learn?
What evidence will be gathered and used to ensure that students learn?

In this era of increased teacher, school, and district accountability for student learning, and more and more public dialogue about test scores and report cards, most people think first and foremost about testing when they consider ways to gather feedback about how students are doing. In fact, all 50 states and the District of Columbia have statewide assessment policies in place, and 45 states publish individual school report cards that are based largely on student test scores (EPE, 2002a and 2002b). By 2008, high school students in 28 states will have to pass a state-administered test in order to graduate (Goertz & Duffy, 2001). This nationwide emphasis on testing has solidified further in light of the No Child Left Behind Act of 2001, which requires states, beginning in the 2002–2003 school year, to provide report cards that include a host of statistics about school progress, including student test scores disaggregated by selected student groups.

State and other standardized tests provide data on overall school performance and can be valuable program evaluation tools. In addition, preparing students for such tests can have a positive effect on learning (Snow-Renner, 2001). For these reasons and others, state assessments receive most of the media attention. But it is classroom assessments that most help teachers keep the focus on learning.

By gathering evidence of learning through classroom assessments, teachers are able to develop a complete picture of students' progress in meeting identified standards and benchmarks. Teachers, students, parents, and others need timely feedback about students' academic achievement for a number of reasons, but most important so that students have the learning experiences they need to succeed. This chapter discusses the strategies teachers can use to gather information about student performance and offers suggestions for using this information to guide instruction in ways that keep the focus on learning.

UNDERSTANDING THE CRITICAL ROLE OF CLASSROOM ASSESSMENTS

State and district tests can provide some useful information to teachers and administrators about the progress of groups of students in meeting identified standards. However, it is widely understood in the education community that since such assessments typically provide only single scores or a small number of scores, using them to make decisions about individual students is unwise (see, e.g., Gifford, 1992; Wiggins, 1993). The most useful feedback about individual students comes from classroom assessments.

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Classroom assessments are important for a number of reasons. First, since classroom teachers are the closest to students during the school day, they are the best judges of the kinds of assessments to give to students and when these assessments should be administered. Second, the variety of classroom assessments that teachers should be skilled in using offer different types of feedback about students' progress, and, together, create a more accurate picture of students' learning over time. Third, classroom assessments provide immediate feedback to teachers, which teachers can use to modify instruction in any number of ways — use a different instructional strategy, re-teach specific content, teach new concepts, and so on. Like a sailor who trims his sails or slightly alters course in response to changing winds and tides, the teacher can continue to modify the student's learning experiences based on data and observations about the student's progress. In short, classroom assessments give teachers the kind of data they need to ensure that students meet standards and consequently perform well on state and district assessments.

Creating meaningful, standards-based assessments that do not compromise the larger goal of student learning is a system-wide endeavor. Classroom assessments need to complement district and state assessments to provide a complete view of student learning. To ensure that a comprehensive, coherent system of assessments is in place, districts should develop an assessment plan. By taking a broad view of assessments and considering the purposes of each test, districts will be better able to keep the focus on improving student learning over time. Exhibit 4.1 provides some guidance on the critical features of a local assessment system that can help ensure this coherence.

MAXIMIZING THE USE OF CLASSROOM ASSESSMENTS

To keep the focus on learning, there are four key points to consider about the use of classroom assessments, each of which is discussed in this section:

1. Be sure that the type of assessment used is appropriate for students' diverse learning styles and characteristics and for the knowledge or skill being assessed.
2. Ensure that criteria for quality performance are explicit.
3. Provide detailed and timely feedback to students about their performance.
4. Use assessments formatively — that is, to tailor instruction in light of information gathered from assessments.

Exhibit 4.1. Critical Features of a Local Assessment System

1. The assessments collectively are relevant to specified learning targets.
2. The assessments are conducted at multiple levels: classroom, school, and district.
3. The assessments are conducted at multiple grades.
4. The assessments draw on multiple methods –"traditional" and "alternative."
5. The assessment system allows for multiple opportunities to demonstrate knowledge, understanding, and skill development.
6. Each assessment in the system has a stated rationale that includes purpose, audience, and articulation with other assessments in the system.

Source: Adapted from *Measured Measures*, Maine Comprehensive Assessment System Technical Advisory Committee Department of Education, 2000.

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Selecting Appropriate Assessments

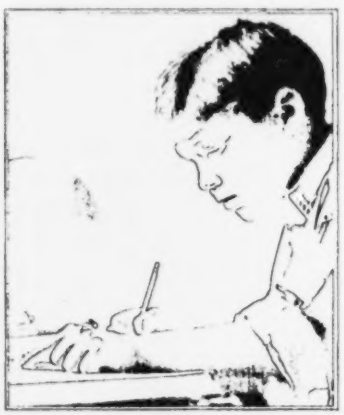
To get the most out of classroom assessments, teachers need to understand the assessment options available to them and how to make choices about which method to use to gather evidence of students' learning. This section summarizes some of the assessments that teachers might use: essays, forced-choice items, oral responses and reports, performance tasks, short constructed-response items, student self-assessments, teacher observations, and teacher-student conferences. These descriptions are provided to draw attention to the alternate assessments that can be used. They also serve as a reminder that using different types of assessments throughout a curriculum unit provides more "windows" into students' learning because students have more than one way to demonstrate their knowledge and skills.

These descriptions also are provided to underscore the fact that the type of assessment to use depends on the type of knowledge or skill being assessed. For example, skills are assessed best by observing performance, but multiple-choice questions, interviews, and student-teacher conferences can be used to assess students' mastery of the related concepts that underlie a skill. Examining standards and benchmarks for the type of knowledge addressed and the required level of performance can help teachers decide which assessment methods to use.

Essays. Essays, which require students to construct in-depth responses to questions, provide insights into students' understanding of concepts and relationships. As McMillan (2001) explains, "Research on student learning habits shows that when students know they will face an essay test they tend to study by looking for themes, patterns, relationships, and how information can be organized and sequenced. In contrast, when studying for objective tests students tend to fragment information and memorize each piece" (p. 184). Essays provide a useful alternative to performance assessments because they are less expensive and time consuming to administer and score, yet they can tap complex learning if properly constructed (Stiggins, 1997).

Using different types of assessments provides more "windows" into students' learning because students have more than one way to demonstrate their knowledge and skills.

Forced-Choice Items. Forced choice items, which include multiple-choice questions, true/false items, and matching exercises, are the most common forms of assessments on standardized tests. Forced-choice items are best used in assessing breadth of content (McREL, 2000). Although forced-choice items often are used to assess students' recall and recognition of information, they also can be constructed to assess higher level thinking. For example, they might be used to assess students' understanding of concepts, their ability to apply knowledge, or their skill in predicting the consequences of an action.



Oral Responses and Reports. Oral reports, which can be thought of as orally presented essays, can be an extremely effective form of assessment (McREL, 2000). Oral responses and reports are adaptable across grade levels and content areas, and can be primary ways of gathering information about student learning or used to fill gaps in a teacher's assessment data. When using oral responses or reports, focusing sharply on the intended learning target improves the likelihood that teachers will gain the information they need about students' level of understanding.

Preparing in advance how to accommodate the needs of English language learners maximizes the benefits of this

method for these students. For example, a teacher may need to simplify the statement of the question, explain the meaning of some terms, translate some words, or provide information in a visual format (Stiggins, 1997).

Performance Tasks. Performance tasks require students to apply learning to specific tasks and situations to demonstrate their knowledge. These tasks might include conducting interviews or creating physical products, oral presentations, videotapes, musical productions, or historical re-enactments. Research indicates that performance tasks can more deeply engage all students in their learning and can lead to a deeper understanding of content (Newmann, Secada, & Wehlage, 1995).

Performance tasks can vary in terms of their complexity, time required for completion, and scope of content assessed. For example, students might be asked to do something as simple as read a poem or as complex as write and perform an original song. In any case, teachers should clearly describe the nature of the final product, resources students will need, and the criteria that will be used to judge the product.

Teachers should embed performance tasks in meaningful contexts so students can see the relevance and usefulness of the knowledge and skills they are learning. This makes it easier for all students to demonstrate what they know. Minority students might find performance tasks particularly motivating and engaging because they present opportunities to bring their cultural backgrounds into classroom learning experiences (see Farr & Trumbull, 1997). Performance tasks also can be quite useful when it is necessary to provide adaptations and accommodations for special needs students. Accommodations in content, format, administration procedures, scoring, and interpretation are more viable with performance tasks than with forced-choice items (Farr & Trumbull, 1997).

Short Constructed-Response Items. Short constructed-response items are questions that require students to prepare short written responses. For example, a science teacher might ask students to provide a brief explanation of how clouds affect weather and climate or a mathematics teacher might ask students to explain how they arrived at the answer to a mathematics problem. The value of this type of item is that it requires students to generate their own response, yet it is not as time intensive as are other assessment forms. In addition, this type of item can be effectively used to assess students' understanding of concepts.

Student Self-Assessments. Student self-assessment can be a valuable tool for measuring students' learning. Self-assessments encourage students to take responsibility for their learning, to understand their learning more thoroughly, and to learn more as a result (Stiggins, 1997). This is particularly important for students who are English language learners or from minority cultures since they may approach learning in ways that are not typical of mainstream culture. These students need to have opportunities to reflect on their learning in ways that are meaningful to them (e.g., writing in their native language, expressing through art, or using an interpreter [Farr & Trumball, 1997]).

To help guide students as they assess their learning, teachers should provide specific questions rather than ask students for a general sense of their progress (Valencia & Place, 1994). For example, teachers might ask students to describe what they know as a result of instruction, what difficulties they had in learning the material, and what else they want to know to extend their learning.

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In order to effectively self-assess, students need guidance on expectations for performance. To provide this guidance, teachers should give students scoring criteria, rubrics, and models of various levels of performance (anchor papers). Such models help students make better judgments about the quality of their own work and determine what they need to do to improve their performance.

Teacher Observations. Teacher observations can be highly effective ways of assessing students' progress in meeting standards. Teachers can keep track of students' progress through informal observations, which might include listening for patterns in questions asked or simply watching students as they go through the day. Observations are particularly useful for assessing students' proficiency in using skills or processes. Observations can be recorded in a daily log. Teachers also might use a more formal checklist in which tasks assigned to students are commented on and checked off as accomplished.

To ensure that assessments provide detailed information about students' understanding and proficiency, teachers should strive for a balance of assessments in each instructional unit.

For observations to be successful measurement tools, it is important for teachers to observe students frequently in a variety of learning situations. Observations are particularly helpful in understanding the subtle differences among students from diverse backgrounds. Frequently observing students as they work allows teachers to discern the different communication patterns, learning styles, participation styles, and other factors that influence students' learning. To increase the appropriateness of the conclusions they draw from observations, teachers might make note of linguistic and cultural factors that they think may be influencing a particular student's learning process. Teachers may benefit from professional development about cultural and linguistic differences; the more they understand about particular cultural backgrounds, the more effective they will be in working with all students.

Teacher-Student Conferences. Conferences are one-on-one communications focused on students' work that occur between students and teachers. The personal attention provided encourages students who are reluctant to speak in class to talk about what they know and what they struggle with, to ask questions, and to receive individualized feedback about their performance. Conferences provide teachers with information about students' learning styles and approaches. They also provide useful feedback about how culturally and linguistically diverse students are interpreting the content being presented.

Conferences are most productive when both the student and the teacher prepare for the conference and when the teacher prepares questions that might encourage students to reflect on their work and share insights (Stiggins, 1997). For example, the teacher might ask, What helped you solve this problem? How did you use voice to make your writing interesting to your audience? or Why did you use that particular analogy to describe the situation?

Balancing Options. To ensure that assessments provide detailed information about students' understanding and proficiency, teachers should strive for a balance of assessments in each instructional unit. To plan and track the content associated with the benchmarks addressed in each unit and the assessments used, teachers might create an assessment matrix. Because some benchmarks cover a narrow range of content, sometimes it is more convenient for teachers to cluster several benchmarks into topic areas. For a unit about tracking weather patterns, for example, an assessment matrix might look like that in Exhibit 4.2.

Being Clear about Performance Expectations

A critical factor in students' performance on all assessments is that they understand the criteria that will

Exhibit 4.2. Assessment Matrix for Unit on Weather Patterns

Benchmark Topic / Assessment	Precipitation	Ocean Currents	Temperature	Reading Tables	Estimation	Classifying	Expressing Ideas Clearly
Short constructed-response items (homework)	X	X			X		
Forced-choice items (quiz)	X						
Performance task (1st)	X			X		X	X
Short constructed response (quiz)	X	X	X				
Essay (homework)	X	X	X				
Performance task (2nd)	X		X		X	X	X
Unit test – forced choice, constructed response, essay, performance task	X	X	X				
Student self-assessment	X	X		X			
Observation	X	X		X	X	X	X

be used to judge their work and what different levels of performance mean. Some districts have set performance standards, which establish the acceptable level of understanding or skill a student should attain in a particular content area at different levels of schooling. Similarly, teachers need to develop criteria for different levels of performance and share these with students. As Walqui (1999) notes in "Assessment of Culturally and Linguistically Diverse Students," criteria should be "made public, discussed with students prior to their use in the classroom, and refined over time on the basis of these discussions and teachers' discussions with colleagues" (p. 72).

Teachers have always had scoring criteria, but have rarely shared them with students until after an assessment has been completed. To support student learning in a standards-based system, criteria for quality work should be shared upfront and throughout the learning process. This is particularly true when constructed-response forms of assessment, such as essays and performance tasks, are used. In order to use performance tasks effectively, teachers must clearly define criteria for different levels of student performance. By combining the scoring criteria with a rating scale, teachers create a scoring guide or rubric. The rubric describes different levels of performance on each of the criteria. Some helpful resources to assist teachers in developing or adapting rubrics are provided in the sidebar.

Helpful Resources: Developing or Adapting Rubrics

Rubistar –http://rubistar.4teachers.org/

Teach-nology – The Art and Science of Teaching with Technology www.teach-nology.com/

North Dakota Teaching with Technology Initiative www.ndtwt.org/

Assessing Student Outcomes: Performance Assessment Using the Dimensions of Learning Model (Marzano, Pickering, & McTighe, 1993)

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When rubrics are used with performance tasks or essays, teachers obtain better information about the level of student knowledge. In the case of essays, teachers can improve the quality of their judgments by selecting an appropriate scoring method, clarifying the importance of writing mechanics, using a systematic process in scoring many essays at the same time (e.g., read all responses to question #1 in one order, question #2 in another order, and so on), and keeping the identity of students anonymous if possible (McMillan, 2001).

It is especially important to be clear about the criteria for performance when scoring oral reports because some students with good verbal skills might seem to know more about the content than they actually do. Similarly, students may make presentations that reflect a high degree of skill in using Microsoft PowerPoint or other programs but not necessarily a solid understanding of important content. To ensure that more accurate conclusions are drawn, teachers should use scoring criteria that outline the specific content knowledge and reasoning processes that students are expected to demonstrate in their responses. It is helpful to have the criteria stated in a checklist format for recording results at the time of the assessment (Stiggins, 1997).

Grades are the most common way that teachers communicate levels of student performance. Most students are accustomed to the A–F grading system, but it is likely that few know what these grades specifically mean. Ideally, teachers in a school and district should have a shared understanding of what is required of a student to earn a particular grade. For example, a faculty might define a grade of "B" as follows:

- Test scores indicate a good grasp of concepts and skills.
- Assignments are generally complete, thorough, and organized.
- Most of the learning goals are fully or consistently met.

Thus, teachers should be clear about the factors to consider when assigning grades. Does a grade reflect only academic achievement? Does it reflect class participation, attendance, effort, or other non-academic factors? Do the answers to these questions vary for different grade levels? To help teachers with these decisions, and to bring coherence to the system, many districts develop grading policies. Having a policy does not mean that it will be followed, however. Research by Cizek (1996) found that even when a district had a grading policy, few teachers knew the details of the policy. This finding suggests that districts need to help teachers understand and enact grading policies.

Helpful Resources: Grading in a Standards-Based System

Transforming Classroom Grading (Marzano, 2000)

Grading and Reporting Student Progress in an Age of Standards (Trumbull & Farr, 2000)

Developing Grading and Reporting Systems for Student Learning (Guskey & Bailey, 2001)

Providing Detailed and Timely Feedback

Detailed, timely feedback to students about their learning is vital in a standards-based classroom. For feedback to be meaningful, it must be based on explicitly defined expectations that are shared with students. Types of feedback include report cards, written comments, and student conferences.

Feedback can help keep the focus on learning, provided there is a high level of specificity. (See Exhibit 4.3.) Simply telling a student that he or she did well on an assignment does not provide that student with a roadmap for future learning. Rather, teachers should provide students with clear assessments of their progress toward each learning goal and ensure that students understand teachers' expectations along the way. Black and Wiliam (1998) caution that "feedback to any pupil should be about the particular qualities of his or her work, with advice on what he or she can do to improve and should avoid comparisons with other pupils" (p. 6).

Exhibit 4.3. Providing Specific Feedback

Before a unit on the Lewis & Clark Expedition, Mrs. Moore and her students discuss the rubric that will be used to judge students' performance and the criteria for success for the three pieces of the assessment: the geographic content of the letter, the grammar and mechanics of the letter, and the elements of the letter.

Later, Mrs. Moore makes the following comments on a paper by Carlos, one of her students: "Carlos, you did a good job of including all the elements of a letter. Your opening sentence captures the reader's interest and you have improved your grammar and use of mechanics. Your letter also includes many important details about the physical features of the landscape and what Lewis and Clark learned from their interactions with the Native Americans they met during their journey."

One of the purposes of grading is providing feedback. If the criteria for grades are well defined, grades can help students understand how closely their performance met the established criteria. Ideally, a grade also helps students know what they need to learn to meet a particular performance level. This is more likely when grades are provided through narrative descriptions of the levels of performance and provide details about students' strengths and weaknesses.

Using Assessment to Tailor Instruction

When used appropriately, assessment data can be a powerful tool for guiding classroom instruction. According to Lambdin (1996):

> When teachers have a good understanding of what their students know and can do, they are able to make appropriate instructional decisions. Such decisions may include identifying appropriate content, sequencing and pacing lessons, modifying or extending activities for students' particular needs, and choosing effective methodologies and representations. (p. 294)

Because assessments measure the effects of instruction and the learning environment on students' content knowledge, skills, and dispositions, it follows that assessment data can be used to adapt instruction to meet the needs of those students. In order to use assessments to guide instruction, however, teachers cannot simply use summative, or end-of-unit, assessments. Instead, teachers should use formative assessments to guide learning — sometimes referred to as assessments for learning because the information provided is used to adapt teaching to meet students' needs.

Formative assessments can help narrow achievement gaps (Black & Wiliam, 1998) and ensure that each child is given the opportunity to demonstrate what he or she knows and can do. As shown in Exhibits 4.4 and 4.5, formative assessment is intimately related to other aspects of classroom practice. This may mean that to realize the potential of formative assessment, teachers must be afforded the flexibility required to make changes in their instructional and assessment practices. Student self-assessment plays a key role in formative assessment because it helps students understand the main purposes for their learning and what they need to do to achieve those purposes (Black & Wiliam, 1998).

Exhibit 4.4. Key Features of Formative Assessment

- Embedded in the teaching and learning process
- Shares learning goals with students
- Helps students know and recognize the standards to aim for
- Provides feedback that leads students to identify what they should do next to improve
- Reflects a commitment that every student can improve
- Involves both teacher and students in reviewing and reflecting on students' performance and progress
- Involves students in self-assessment

Source: Adapted from *Assessment for Learning* (Qualifications and Curriculum Authority, 2002) www.qca.org.uk/ca/5-14/afl/

Classroom discussions that require higher order thinking also are important sources of information about student learning. These discussions provide opportunities for students to demonstrate their ability to use critical thinking skills. To obtain information about all students' learning, teachers should use various techniques to

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involve students. For example, students could discuss questions in pairs and then write their answers. Individuals could then be selected to share their responses with the whole class.

Exhibit 4.5. Principles of Assessment for Learning

Assessment for learning . . .

1. is part of effective planning
2. focuses on how students learn
3. is central to classroom practice
4. is a key professional skill
5. is sensitive and constructive
6. fosters motivation
7. promotes understanding of goals and criteria
8. helps learners know how to improve
9. develops the capacity for self-assessment
10. recognizes all educational achievement

Source: *Assessment for Learning: 10 Principles* (Assessment Reform Group, 2002) www.assessment-reform-group.org.uk/

Key Ideas: Keeping the Focus on Learning Through Assessment

Classroom assessments are critical in a standards-based system because they give teachers and students the feedback they need about students' progress.

Classroom assessments should complement district and state assessments.

To maximize the benefits of classroom assessments, teachers need to know how to select appropriate assessments given students' diverse learning styles and the type of knowledge or skill being assessed.

A critical factor in students' performance is that they understand the criteria that will be used to judge their work and what different levels of performance mean.

Detailed and timely feedback to students that relates to the specific content they are learning helps keep the focus on learning.

Teachers should use information from assessments to adapt instruction to meet students' needs.

Given the increasing diversity of the American classroom, providing students with appropriate opportunities to demonstrate their learning can be a challenge for teachers. But by using formative assessment, teachers receive a constant stream of information about all students. For example, if a teacher notices that some students are having difficulty distinguishing between even and odd numbers, she might use manipulatives to show them the differences. Conversely, if an assessment indicates that a particular student is well ahead of the curve, teachers could then provide that student with more advanced learning activities in the content area. Put simply, using assessment data to inform instruction can make instruction more responsive to students' needs, and ensure that every student gains the depth of knowledge and skill needed in each content area.

CONCLUSION

Assessment is an important aspect of the standards-based education system. To realize the benefits of assessment, however, teachers need to ensure that criteria for students' performance are explicit, whether developing rubrics for a specific task or defining what grades mean. To help students benefit from the assessment process, teachers also need to become skilled in providing students with specific feedback tied to criteria. This may be a challenge for teachers because using assessments in ways that help students improve their performance means changing instructional practices to meet students' unique needs. It also means involving students in judging the quality of their own work.

Although good classroom assessments are key to helping teachers assist students in meeting identified standards and benchmarks, classroom assessments should not be developed and used independently of assessments at other levels of the system. Having a district assessment plan helps ensure coherence among state, district, and classroom assessments. The challenge for teachers is to develop a range of skills in choosing appropriate assessment methods and interpreting the results of those assessments in ways that foster and support students' learning.

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